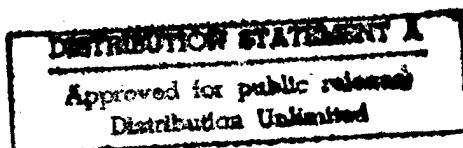


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# USSR Report

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BIOMEDICAL AND BEHAVIORAL SCIENCES

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5 February 1985

**USSR REPORT  
LIFE SCIENCES  
BIOMEDICAL AND BEHAVIORAL SCIENCES**

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VETERINARY MEDICINE

UDC: 582.282.123.4-11

FUNGI OF GENUS ASPERGILLUS MICH., PRODUCING KOJIC ACID ON MIXED FEED AND SIGNIFICANCE OF THIS MYCOTOXIN IN ANIMAL PATHOLOGY

Moscow MIKROBIOLOGIYA in Russian Vol 46, No 4, Jul-Aug 84  
(manuscript received 3 Dec 82) pp 41-47

KHARCHENKO, S. N. and YATSYSHIN, A. I., Ukrainian Agricultural Academy, Kiev

[Abstract] Kojic acid (5-oxy-2-hydroxymethyl-y-pyrone) is a cyclic pyrone compound with mp 152°C. It is formed by many species of microorganisms, particularly fungi of the genera Aspergillus Mich. and Penicillium Link. This work determines strains forming kojic acid among Aspergillus isolates from mixed feed from swine farms in the Ukraine and studies the pathologic effect of kojic acid on the animals. The toxin-forming properties of 59 strains of various Aspergillus Mich. species were studied, indicating that kojic acid is produced by 22 strains or 37.2% of the total number of cultures tested. The greatest number of kojic acid producers was found among isolates of A. flavus (48.1%), somewhat less among A. oryzae (33.3%) and A. fumigatus (28.5%), the least among A. nidulans (20%), none among A. niger. These fungi represent potential danger for the health of the animals. Kojic acid poisoning is accompanied by ataxia, vomiting, diarrhea, weight loss and pathologic changes in the internal organs. Figure 1; references 19: 11 Russian, 8 Western.

[814-6508]

UDC: 619:616.981.42:612.017.1

PREVENTING ANTHRAX

Moscow VETERINARIYA in Russian No 8, Aug 84 pp 27-28

IPATENKO, N. G., SHCHENEV, A. I., ANTONYUK, V. P., and MELIKHOV, A. D., All-Union State Scientific Control Institute of Veterinary Preparations; Main Administration for Veterinary Medicine, USSR Ministry of Agriculture

[Abstract] Great work is performed in the Soviet Union to prevent anthrax. Several million animals are immunized each year. Analysis of the morbidity

over the past 30 to 50 years reveals variable patterns, some places reporting cases for periods of 2 to 10 years, others reporting sporadic or regular repeating outbreaks. Preventive measures should be undertaken as a function of the epizootic status of each area. Only this varied approach, with full cooperation of farm administrators and veterinary specialists, can control anthrax.

[842-6508]

UDC: 619:616-007:615.93

#### CHANGES IN ORGANS OF SHEEP IN EXPERIMENTAL FUSARIOTOXICOSIS

Moscow VETERINARIYA in Russian No 8, Aug 84 pp 63-65

RUKHLYADA, V. V., Ukrainian Scientific Research Institute of Experimental Veterinary Medicine and PILIPENKO, M. Ye., Khar'kov Zooveterinary Institute

[Abstract] A study is presented of the macroscopic and microscopic changes in the organs of sheep with experimental acute and subacute T-2 fusariotoxicosis produced by T-2 toxin obtained from a culture of *F. sporotrichiella* var poal strain 145/4. The sheep were examined after dying of the experimental infection. Histologic and anatomical changes in sheep with acute and subacute T-2 toxicosis were essentially similar. The changes are described and photomicrographs of tissue specimens are presented. Multiple hemorrhages in subcutaneous tissue muscles, beneath serous envelopes and indigestive mucosa were observed. Hemodynamic disorders in the form of spaces and expansion of blood vessels were observed in the heart, liver, lungs and lymph nodes. Blood vessel structures, particularly the intima, were also affected. The hepatic sinusoids were particularly affected. The myocardium and liver parenchyma had micronecrotic foci, areas of hypochromatosis, the lungs had extensive fields of atelectasis, there was damage in the epithelial projections of the bronchi, with total destruction of the parenchyma of mesenterial lymph nodes. Figures 5.

[842-6508]

UDC: 619:615.777/.779

TOXICITY AND ANTICHOLINESTERASE ACTION OF INSECTICIDES

Moscow VETERINARIYA in Russian No 8, Aug 84 pp 65-67

BALASHOVA, Ye. K., ROZENGART, V. I., SHERSTOBITOY, O. Ye., Institute of Evolutionary Physiology and Biochemistry, USSR Academy of Sciences, ZHELTOV, V. A., All-Union Scientific Research Institute of Veterinary Virology and Microbiology, and PAVLOV, S. D., All-Union Scientific Research Institute of Veterinary Entomology and Arachnology

[Abstract] Results are presented from a comparative study of the toxicity and anticholinesterase activity, of a number of organophosphorus compounds and carbamates, for females of the genus hybomitra and the fly *M. domestica* L. The hybomitra horse flies were trapped in pastures; the house flies were taken from a pesticide-sensitive laboratory culture. It was found that all of the compounds studied were more toxic for the horse flies than for the house flies. The difference in toxicity was particularly great for carbamates (sevin and propoxur). All of the substances had a clear anticholinesterase action on horse flies and house flies, particularly the latter: The requirement of high acute toxicity for insects and low toxicity for mammals was met by GDVF and propoxur among the compounds studied. The former is highly toxic for horse flies as well as house flies, while the latter is highly toxic primarily for horse flies, less for house flies. Anticholinesterase activity and toxicity did not vary identically.

[842-6508]

UDC: 619:616.981.42:612.017.1

ANTIGEN-REACTIVE CELLS IN BLOOD IN SPONTANEOUS BRUCELLOSIS

Moscow VETERINARIYA in Russian No 8, Aug 84 pp 68-69

PROSKURINA, L. I., Semipalatinsk Zooveterinary Institute

[Abstract] Results are presented from a study of the content of lymphocytes and brucellin-reactive cells in the blood of cattle with spontaneous brucellosis. The study of the quantitative composition of some populations of T-lymphocytes showed that the number of theophyllin-resistant T-lymphocytes in diseased cattle was  $1518 \pm 197$ , in healthy cattle  $1055 \pm 257$ . The number of theophyllin-sensitive T cells was conversely higher among healthy than diseased animals, though the differences were not reliable. The study of brucellin-reactive T cells showed that in diseased animals there was a significant increase in the number of rosettes after incubation with brucellin. The rosette formation test is recommended for determination of populations, subpopulations and functional activity of immunocompetent cells in cattle. Brucellin-reactive lymphocytes are present in large numbers in the peripheral blood of cattle with spontaneous brucellosis, absent in healthy animals.

[842-6508]

VIROLOGY

UDC: 616.36-002.14-022:578.891]-078:[578.891:578.74

DELTA INFECTION AND VIRAL HEPATITIS B

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 4, Jul-Aug 84 pp 509-510

EDITORIAL

[Abstract] The delta agent discovered by M. Rizzetto et al. in 1977 is a spherical particle 35-37 nm in diameter, the outer shell of which is constructed of viral hepatitis B surface antigen. Breakdown of these particles by detergent reveals an internal component which has specific antigen activity and contains RNA MW 500,000. One of the most interesting peculiarities of a delta infection is that the hepatitis associated with the delta agent always develops against a background of infection caused by the hepatitis B virus. It is thought that the delta agent is a defective virus requiring certain functions related to replication of the hepatitis B virus for its own reproduction. The most intensive studies of the delta agent are currently being undertaken in the USA. The dependence of delta infection development on replication of the hepatitis B virus indicates that vaccination against hepatitis B would be a means of preventing the delta infection as well.

[1601-6508]

UDC: 578.833.083.3

REACTION OF RADIAL HEMOLYSIS WITH MOSQUITO FEVER VIRUSES

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 4, Jul-Aug 84  
(manuscript received 19 Aug 83) pp 506-508

BATEN, M. A. and MEL'NIKOVA, Ye. E., Institute of Virology  
imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

[Abstract] An attempt was made to reproduce the radial hemolysis reaction with a group of mosquito fever viruses. The results were mostly negative, with specific hemolysis achieved in only a few cases. Even in these cases the reaction was mild, zones of hemolysis unclear and no results were achieved even one day after preparation of the specimens. A method was developed for the hemolysis reaction with three viruses of the mosquito fever group--SML, NML and Carr. Conditions of bonding the antigens to

erythrocytes were determined. The concentrations of chromium chloride and tannin to be used for preliminary treatment of the erythrocytes to increase the absorbing capacity of the erythrocyte envelopes were determined. The optimal buffer solution pH was determined for sensitization of erythrocytes, as well as the best forms of erythrocyte-sheep erythrocytes.

References 2 (Russian).

[1601-6508]

UDC: 578.833.29.083.224

#### ISOLATION OF STRAINS OF VIRUS OF HEMORRHAGIC FEVER WITH RENAL SYNDROME IN CELL CULTURE

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 4, Jul-Aug 84  
(manuscript received 7 Feb 84) pp 497-502

BASHKIRTSEV, V. N., TKACHENKO, Ye. A., DZAGUROVA, T. K. and RYL'TSEVA, Ye. V., Institute of Poliomyelitis and Viral Encephalites, USSR Academy of Medical Sciences, Moscow

[Abstract] Data are presented for the first time on isolation, in a Vero-E6 cell culture of strains of the virus causing hemorrhagic fever with renal syndrome, from Clethrionomys glareolus caught in natural foci of the disease in the Soviet Union. Cl. glareolus (199 specimens) were caught in May-June of 1983 in a natural disease focus. The lungs were removed from each animal and stored in liquid nitrogen until studied, blood samples were drawn and the serum separated and stored at -50°C until studied. The viral strain Hantaan 76-118 was isolated as a suspension of infected cells obtained from the Institute of Tropical Medicine in Belgium. This strain and RW E6-3952 of the virus were isolated in a Vero-E6 cell culture during joint Soviet-Belgian studies on the disease in May of 1983. The Vero-E6 cells were infected with a suspension of pulmonary tissue. The suspension of infected cells was mixed with an equal volume of fresh normal Vero-E6 cells. The strains isolated in the Vero-E6 culture from the Cl. glareolus rodents did not differ in antigen production and specifically evoked antibodies to hemorrhagic fever with renal syndrome in human blood serum. However, there were clear antigen differences between these strains and the Hantaan 76-118 and RW E6-3952 strains. This indicates that the viral strains isolated from the rodents were in the 'Western' serotype of the virus.

References 7 (Russian).

[1601-6508]

UDC: 578.833.29.083.12(574)

ISOLATION OF TAMDY VIRUS (BUNYAVIRIDAE), PATHOGENIC FOR MAN, FROM NATURAL SOURCES IN CENTRAL ASIA, KAZAKHSTAN AND TRANSCAUCAS

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 4, Jul-Aug 84  
(manuscript received 20 Jun 83) pp 487-490

L'VOV, D. K., SIDOROVA, G. A., GROMASHEVSKIY, V. L., SKVORTSOVA, T. M., ARISTOVA, V. A., IPATOV, V. P., NERONOV, V. M., ZAKARYAN, V. A. and KARIMOV, S. K., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

[Abstract] Some 47 strains of Tamdy virus isolated from natural sources were analyzed. Sixteen strains were isolated from ticks of the genus hyalomma, over 15,000 from ticks of the genus rhipicephalus. The virus was isolated in neonatal white mice. The Tamdy virus was isolated in the Turkmenian SSR, Uzbek SSR and Armenian SSR and also, the Kirgiz SSR and Kazakh SSR. A table presents summary data on the isolation of the 47 strains. Thirty-two of the 47 known strains were isolated from the tick hyalomma asiaticum. A map outlines the areas where the viruses were found in Central Asia and kazakhstan. H. asiaticum almost never attacks man, so that epidemic outbreaks of Tamdy virus disease have not been recorded. Figures 2; references 12: 9 Russian, 3 Western.

[1601-6508]

UDC: 578.824.11:578.3

MORPHOLOGY OF ARCTIC RABIES VIRUS

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 2, Mar-Apr 84  
(manuscript received 25 Apr 83) pp 253-256

SELIMOV, M. A., KOROLEV, M. B. and TATAROV, A. G.

[Abstract] Arctic Rabies is considered one of the evolutionary forms of rabies. This article presents the results of electron microscope study of 4 strains of Arctic rabies virus. Study of white-mouse brain preparations infected with Arctic rabies virus revealed in all cases in the neurons or segments of the neurons the characteristic rhabdovirus particles. Micrographs are presented. The observations indicate full morphologic similarity of Arctic rabies viruses with those infectious to humans. The virus is apparently less pathogenic for man than other evolutionary varieties which infect rats and various wild and domestic carnivores. Figures 3; references 7: 6 Russian, 1 Western.

[1531-6508]

UDC: 576.895.42:[591.67:578.833.2]:578.24.086.3

ELECTRON-MICROSCOPE STUDY OF TICK MIDGUT AFTER EXPERIMENTAL INFECTION WITH KARSHI VIRUS

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 2, Mar-Apr 84  
(manuscript received 10 May 83) pp 235-240

GUSHCHINA, Ye. A., ARISTOVA, V. A., GROMASHEVSKIY, V. L., VOLTSIT, O. V.,  
GUSHCHIN, B. V., L'VOV, D. K. and KLIMENKO, S. M., Institute of Virology  
imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

[Abstract] Results are presented from an electron-microscope study of the reproduction of Karshi virus (genus Flavivirus) from ticks *Ornithodoros papillipes* in Uzbekistan in the midgut cells of *H. asiaticum* and *H. anatolicum* ticks. Laboratory cultures of the two tick species were infected, each tick receiving 0.01 to 0.02 ml of a 20% virus-containing suspension mixed in various volumes with defibrinized mouse blood. Infectious titers amounted to 4.5 to 9.0 lg LD<sub>50</sub>/0.02 ml. One group of ticks was maintained in a moist chamber at 22°C, another at 37°C. The 22°C ticks were sacrificed at 24, 48, 72, 96 hours and 4, 5.5 and 7 days, then at 21, 29, 30, 36, 43, 45, 46, 50 and 56 days. The ticks incubated at 37°C were sacrificed at 2, 4, 24, 48, 72 and 96 hours. Electromicrographs are presented. The electron microscope data showed that reproduction of the Karshi virus in gut cells apparently begins 24 hours after infection in the 37°C incubated ticks, 7 days later in those incubated at 22°C. It was shown that administration of virus-containing suspensions through the oral apparatus is a reliable method of experimental infection of ticks. Figures 3; references 3:  
2 Russian, 1 Western.

[1531-6508]

UDC: 578.833.27.083.338

INDIRECT HEMAGGLUTINATION REACTION AS METHOD OF REVEALING AND IDENTIFYING JAPANESE ENCEPHALITIS VIRUS

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 2, Mar-Apr 84  
(manuscript received 18 Jan 83) pp 246-248

NIKOLAYEV, V. P., SHMIDT, O. A. and ZMACHINSKAYA, V. V., Military Medical Academy imeni S. I. [sic] Kirov, Leningrad

[Abstract] To evaluate the sensitivity and effectiveness of indirect hemagglutination reaction, 2-to-4-day-old mouse pups and cell cultures grown in test tubes were infected with various doses of Japanese encephalitis virus. Three mice were sacrificed and nutrient medium was drawn from 3 cell cultures each day. A 10% mouse-brain suspension and a nutrient medium were feed of suspended particles by centrifugation for 30 minutes at 4000 g, then the test was applied. The infected mouse-brain suspensions and acetone

antigens were tested. The results of identification by the indirect hemagglutination reaction were checked by performing neutralization in the mouse pups with immune ascites fluid. When the minimal quantity (0.17-0.92 lg LD<sub>50</sub>) was used, the viral antigen was found in brain suspensions 4 days after infection. The time of determination of the antigen also depends on the sensitivity of the biological model infected as well as the infecting dose of pathogen. Mouse pups were found to be a more sensitive model than the cell cultures used. The indirect hemagglutination reaction can not only detect, but, also, identify freshly liberated strains of Japanese encephalitis virus. References 8: 7 Russian, 1 Western.

[1531-6508]

UDC: 616.98:579.824.11]-085.339:578.245

INFLUENCE OF DOUBLE-HELIX RNA INTERFERON INDUCTOR ON DEVELOPMENT OF VACCINAL ANTIRABIES IMMUNITY

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 2, Mar-Apr 84  
(manuscript received 3 May 83) pp 223-227

GRIBENCHA, S. V., NOSIK, N. N., YERSHOV, F. I. and BARINSKIY, I. F.,  
Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

[Abstract] A study is reported of the dynamics of formation of immunity upon combined application of an interferon inductor and antirabies vaccine in comparison with the use of the vaccine alone or gamma globulin or vaccine. The study was made on mongrel mice as well as BALB line mice. In experiments with intracerebral administration of street rabies virus at 4 LD<sub>50</sub>, reliable (82%) protection was achieved only in the group of mice which received dsRNA intracerebrally plus the vaccine. With intramuscular administration of 5 LD<sub>50</sub>, reliable protection was achieved in all groups. 100% Survival was achieved with combined administration of dsRNA intracerebrally plus vaccine. The studies indicate the effectiveness and promise of combined application of interferon inductor plus vaccine to prevent the development of rabies, particularly following bites in dangerous locations with short incubation period. References 7: 3 Russian, 4 Western.

[1531-6508]

UDC: 578.833.26:578.72.04:615.332 (Streptomycinum)

STREPTOMYCIN, ACTIVATOR OF PERSISTENT TICK-BORNE ENCEPHALITIS VIRUS

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 2, Mar-Apr 84  
(manuscript received 6 Apr 83) pp 217-223

MALENKO, G. V., POGODINA, V. V. and KARMSHEVA, V. Ya., Institute of Poliomyelitis and Viral Encephalites, USSR Academy of Medical Sciences, Moscow

[Abstract] A study is made of the activating effect of streptomycin for the persistent tick-borne encephalitis virus based on possible combination of viral and bacterial infection and the use of antibiotics for therapeutic purposes. Experimental persistent infection was modeled by subcutaneous and intracerebral infection of Syrian hamsters with three strains of tick-borne encephalitis virus capable of long-term persistence in these animals and in apes. The activating effect of streptomycin was studied in the early and later stages of viral persistence, 70 days to 9 months. In no cases of examination of hamsters 1, 2 1/2, 3 1/2 and 9 months after infection was tick-borne encephalitis virus found in hamsters. However, the organs of the animals did contain antigens detected by the fluorescent antibody method. Virologic examination of 42 individual and combined organ samples of hamsters infected with tick-borne encephalitis which received streptomycin at various times after infection yielded 7 strains identified as tick-borne encephalitis virus. When hamsters received streptomycin for 35 days, the persistent tick-borne encephalitis virus was therefore activated. The activating effect appears to be due to the immunosuppressive properties of streptomycin.

References 15: 13 Russian, 2 Western.

[1531-6508]

UDC: 616.98:578.833.27]-084:615.339:578.245

COMBINED APPLICATION OF SPECIFIC VACCINE AND INTERFERON INDUCTORS FOR PREVENTION AND TREATMENT OF EXPERIMENTAL TICK-BORNE ENCEPHALITIS

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 2, Mar-Apr 84  
(manuscript received 19 May 83) pp 214-217

BARINSKIY, I. F., YERSHOV, F. I., POPOVA, O. M. and TAZULAKHOVA, E. B., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

[Abstract] Results are presented from comparative studies of the use of interferon inductors produced domestically: poly(G)·poly(C), double-helix RNA (dsRNA), tyleron, Tash-3, Tash-4, and dextran sulfate for the prevention and treatment of tick-borne encephalitis in experiments involving intra-peritoneal or oral administration of the preparation. The greatest prophylactic effect in experimental infection was that of tyleron and poly(G)·poly(C)--tyleron providing 60 and 50% protection of animals

administered 24 and 4 hours before infection, and poly(G)-poly(C) providing 75 percent protection only when administered 24 hours before infection. The substances had no therapeutic effect. Tash-3 has a statistically-reliable protective effect when administered 4 hours before infection and a reliable protective effect 4 hours after infection as well. The other substances had neither prophylactic nor therapeutic effect. References 9: 7 Russian, 2 Western.  
[1531-6508]

UDC: 548.833.11:578.232].04.547.944.6

INHIBITING INFLUENCE OF COLCEMIDE ON DEVELOPMENT OF CYTOPATHIC CHANGES CAUSED BY SINDBIS VIRUS

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 2, Mar-Apr 84  
(manuscript received 1 Jul 83) pp 201-206

KARMSHEVA, V. Ya., OVSYANNIKOVA, N. V. and IVANNIKOVA, T. A.,  
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[Abstract] A study is reported of the influence of colcemide on the development of cytopathic changes and immune cytolysis using the model of sindbis virus infection of Chinese hamster cell cultures grown in a medium without homologous antiviral immune serum or with it. Acute infection developed in the hamster cells exposed to the sindbis virus with active reproduction of the virus and clear cytopathic effects. The results showed that the presence of colcemide in the supporting culture medium after adsorption of the sindbis virus had an inhibiting effect on the development of cytopathic changes and accumulation of intracellular and superficial viral antigens for more than 24 hours without influencing the reproduction of the infectious virus. The inhibition of the cytopathic effect can apparently be explained by the changes in the morphofunctional status of the cells during mitosis and the increase in resistance of the cell to the unfavorable effects due to polyploidy and multiple nuclei, plus the stabilizing effect of colcemide on lysosomal membranes and the increase in the activity of the endoplasmic reticulum.

References 26: 11 Russian, 15 Western.

[1531-6508]

UDC: 578.833.26:578.53

BIOLOGIC AND GENETIC PROPERTIES OF MULTIPLOID-FORMING MUTANT OF VENEZUELIAN EQUINE ENCEPHALOMYELITIS VIRUS

Moscow VOPROSY VIRUSOLOGII in Russian Vol 29, No 2, Mar-Apr 84  
(manuscript received 20 Dec 82) pp 195-200

KARPOVA, Ye. F., TSILINSKIY, Ya. Ya., GUSHCHIN, B. V., GUSHCHINA, Ye. A., KLIMENKO, S. M., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

[Abstract] An analysis is presented of some biologic and genetic characteristics of the multiploid-forming mutant of Venezuelan equine encephalomyelitis virus. A laboratory strain of the virus obtained from the collection of the D. I. Ivanovskiy Institute of Virology was used. The multiploid mutant was isolated upon cloning of the laboratory strain. Passages through CEF cultures did not eliminate the ability of the mutant to form multiploid virions. This means that the concentration of multiploid virions remains constant in the population cloned from the mutant. Formation of multiploid virions compensates for the temperature sensitivity defect seen in later stages of the viral replication in the standard virion. It is assumed that upon infection by isolated multiploid virions the compensation mechanism is employed in the first cycle of reproduction of the virus rather than only after maturation of the virus and liberation of multiploid virions from the cell as is the case for the standard virion. This increases the effectiveness of formation of infectious centers. Figures 3; references 10: 6 Russian, 4 Western.

[1531-6508]

UDC: 616.98:578.8]-085.281.8

NONTRADITIONAL CHEMOTHERAPY OF VIRAL INFECTIONS

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 8, Aug 84  
(manuscript received 9 Dec 83) pp 24-31

ZHDANOV, V. M., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

[Abstract] The great variety of genetic material used by viruses has made the development of chemotherapeutic substances against viruses difficult. Active antiviral substances always have a narrow spectrum of action or low effectiveness. Several examples are used to illustrate these conclusions. However, nature has suggested, on the example of interferon, other, non-traditional means of chemotherapy or specific therapy of viral infections. The more than 20 interferons are proteins which have universal action on viruses, acting in cells of their own species (the species from which the

interferon was taken). Interferon blocks the beginning of translation, recognizing and discriminating viral information RNA from cellular RNA. The five major trends in nontraditional chemotherapy of viral infections are noted: use of nucleases, blocking of receptors, destruction of virus-infected cells, directed injury to viral genes and disruption of proteolysis. The new trends in the therapy of viral infection as described here have good prospects for development. Some have just been formulated, others have been experimentally confirmed, still others are in use in clinical practice. References 15: 8 Russian, 7 Western.

[1624-6508]

CONFERENCES

FOURTH ALL-UNION CONFERENCE ON WATER TOXICOLOGY

Kiev GIDROBIOLOGICHESKIY ZHURNAL in Russian Vol 20, No 3, May-Jun 84  
(manuscript received 31 Jan 84) pp 107-109

PLATPIRA, V. P.

[Abstract] The Fourth All-Union Conference on Water Toxicology was held on September 13-15, 1983 in Jurmale, Latvia. The conference was organized by the Institute of Biology, Latvian SSR Academy of Sciences, the Commission on Water Toxicology of the Scientific Council for Problems of Hydrobiology, Ichthyology and Exploitation of Biological Resources of Reservoirs of the USSR Academy of Sciences, and the Commission on the Protection of Natural Waters of the USSR Academy of Sciences. In all, 42 reports were presented and discussed, which were supplemented by 41 presentations in the poster session. Among the many interesting reports were those of R. A. Polishchuk (Institute of Southern Seas Biology, Sevastopol) on the algicidal effects of heavy metals in marine environments, and of Z. S. Yevtushenko et al. (Far Eastern Scientific Center) on the role of metallothioneins in the adaptation of mollusks to toxic agents under laboratory conditions. A. L. Burkovskiy (Volgograd Department GosNIORKh) dealt with the symptomatology of hydrobionts exposed to toxic organophosphorus compounds and a reproducible monitoring system for waste waters, and Z. M. Latse (Institute of Biology, Latvian SSR Academy of Sciences, Salaspils) covered the in vitro effects of surfactants on the biological activity of purified sturgeon gonadotropin. (Illegible) talks included the report by E. Ye. Boykova (Institute of Biology, Latvian SSR Academy of Sciences) on the in situ susceptibility of natural protozoal communities to metals, and the use of protozoa as indicators in rapid tests on marine pollution. In conclusion, the participants noted the need for a more biochemical approach to toxicology and the need to involve microbiologists in studies in biodegradation in aqueous environments, as well as a need for expansion of toxicogenetic studies.

[1513-12172]

SECOND ALL-UNION SEMINAR ON MOLECULAR MECHANISMS OF REGULATION OF SYNAPTIC TRANSMISSION

Yerevan NEYROKHIMIYA in Russian Vol 3, No 2, Apr-Jun 84 pp 212-215

TARANOVA, N. P.

[Abstract] The seminar was held 27 through 29 June 1983 at Pushchino-on-the-Oka, at the Institute of Biological Physics, USSR Academy of Sciences. Some 110 scientific workers from a number of institutes in the USSR attended. During the 3 days of the seminar there were five sessions, which heard and discussed 16 reports. Topics included problems of regulation of synaptic transmission, the relationship between the influx of  $\text{Ca}^{2+}$ , accumulation of this ion in nerve endings and liberation of neuromediators, presynaptic processes and mechanisms of their regulation, presynaptic regulation of the liberation of neurotransmitters (by O. V. Godukina and A. D. Zharikov (Pushchino)), protein and neuropeptide synaptic process regulators (by V. V. Sheptnev (Moscow)), neurotoxins as tools for the study of molecular mechanisms of regulation of synaptic transmission (by V. K. Lutsenko and G. N. Kryzhanovskiy (Moscow)), opiate receptors (by K. N. Yarygin (Moscow)), glutamate receptors of the central nervous system in the process of regulation of the effectiveness of synaptic transmission (by S. A. Dambinova (Leningrad)), receptors for psychotropic preparations (by A. V. Val'dman and V. V. Rozhants (Moscow)) and problems related to the use of the achievements of fundamental research in the area of neurochemistry of the synapses. It was noted in the resolution of the seminar that the study of mechanisms and systems of regulation of synaptic transmission using neurochemical and biochemical methods is presently one of the most pressing areas in molecular neurobiology.

[813-6508]

UDC: 612.048

CONFERENCE ON NEUROSCIENCES

Leningrad FIZIOLOGICHESKIY ZHURNAL IMENI I. M. SECHENOVA in Russian Vol 70, No 7, Jul 84 (manuscript received 21 Mar 84) pp 1076-1080

IL'INSKIY, O. B., Moscow

[Abstract] The title conference was held at 12 through 17 Feb 84 at Bakuriani, organized by the Georgian Academy of Sciences, Tbilisi State University and the Georgian Physiological Society, imeni I. S. Beritashvili. This was the first attempt to gather together various specialists studying the nervous system under experimental and clinical conditions. A group of reports was dedicated to the study of physiological and pharmacologic nervous tissue. A review was presented of the current status of research on nerve and glial cells in cultures. Current achievements in the area of transplantation of brain tissue were discussed. Other reports discussed:

the stimulating effect of a number of neuropeptides on processes of regeneration of nerve tissue; pharmacologic approaches in the study of properties of the nervous system; analysis of various aspects of the activity of the central nervous system in animal experiments; amplification of effectiveness of excitatory synapses as the major mechanism of memory storage; participation of neostratum mediator systems in conditioned reflex restructuring relating to motor reactions; specific neurophysiological mechanisms of paradoxical sleep; problems of regulation of blood supply to the brain; free radical oxidation and antioxidant activity in acute cerebrovascular injury, epilepsy, brain and spinal tumors; the current status of the problem of functional asymmetry of the cerebral hemispheres; and differences in cerebral activities in persons speaking different languages.

[796-6508]

MISCELLANEOUS

SHABAT KHODZHAYEVICH KHODZHAYEV CELEBRATES HIS 60TH BIRTHDAY

Tashkent MEDITSINSKIY ZHURNAL UZBEKISTANA in Russian No 6, Jun 84 (signed to press 4 Jun 84) pp 71-73

[Article by the Board of the Uzbek Ministry of Health, Scientific Medical Council of Uzbek Ministry of Health, editorial board of MEDITSINSKIY ZHURNAL UZBEKISTANA and staff of the Uzbek Affiliate of the Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences]

[Text] Professor Shabat Khodzhayevich Khodzhayev, doctor of medical sciences, Honored Scientist of Uzbek SSR and Kara-Kalpak ASSR, director of the Uzbek Affiliate of the Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, celebrated his 60th birthday.

Sh. Kh. Khodzhayev was born in 1924 in Tashkent. He graduated in 1946 from the therapy faculty of Tashkent Medical Institute. He started his career in Kara-Kalpak ASSR, where he worked as chief of internal medicine department and, concurrently, medical section chief of the Kara-Kalpak Ministry of Internal Affairs.

In November 1946, Sh. Kh. Khodzhayev enrolled as a graduate student at the Institute of Epidemiology, Microbiology and Infectious Diseases, USSR Academy of Medical Sciences (Moscow). After completing his graduate studies and defending his candidatorial dissertation, he worked at that institute as laboratory technician-physician up to 1951. In May 1951, he was elected as assistant and in 1953 as docent in the Department of Infectious Diseases at the Tashkent Institute for Advanced Training of Physicians. He worked on his doctoral dissertation from 1956 to 1960 at the Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences.

The beginning and subsequent long period of scientific endeavors of Sh. Kh. Khodzhayev were linked with the best clinics and scientific institutions of our country. His teachers were well-known Soviet scientists: academicians G. P. Rudnev, I. A. Kassirskiy, V. D. Timakov, P. F. Zdrodovskiy, I. V. Davydovskiy, P. A. Vershilova, Kh. Kh. Planel'yes, L. A. Zil'ber, V. L. Troitskiy, Ye. N. Pavlovskiy, F. F. Talyzin and others.

In his doctoral dissertation, "Pathogenesis of Recurrence and Course of Brucellosis in an Immune System," which was prepared on the basis of vast clinical and experimental material, he validated proof of the possibility and inevitability of recovering from brucellosis.

In 1961, Sh. Kh. Khodzhayev was elected professor in the Department of Infectious Diseases at Tashkent Institute for Advanced Training of Physicians, and starting in 1964 he has been the chief of the Department of Childhood Infections at this institute. These were years of fruitful scientific, medical, pedagogic and public work.

A follower of applied clinical immunology, Sh. Kh. Khodzhayev made it the main direction of research by the staff in the department. There were clinical-immunological studies pursued on brucellosis, dysentery, diphtheria and influenza under his guidance. As a result, the agglutination inhibition test was adopted for the first time in Tashkent for detection of brucellosis and diphtheria, and the immunofluorescence test was introduced for detection of influenza and acute respiratory diseases.

Prof Sh. Kh. Khodzhayev combined his scientific endeavors with consultant and organizational-methodological assistance to public health agencies and institutions of Uzbek SSR and other republics of our country. In 1970, he headed organization of measures to restrict the spread of cholera in the capacity of advisor to the Bulgarian Ministry of Health. At the request of the Ministry of Health of the People's Republic of Bulgaria, Sh. Kh. Khodzhayev wrote the monograph, "El Tor Cholera," which was published in Sofia in 1970.

In 1972, Sh. Kh. Khodzhayev headed a team of Soviet physicians who traveled to the Yemen Arab Republic to offer assistance in eradicating a cholera epidemic. His experience in the control of cholera has been published in the form of articles in periodicals, methodological instructions and manuals for physicians in Arabic.

In 1971-1975, Sh. Kh. Khodzhayev made a major contribution to development of measures for prevention and treatment of meningococcal infection. The scientific research in the area of meningococcal infection, which Sh. Kh. Khodzhayev pursued together with his department's staff, was concerned with epidemiology under conditions prevailing in this republic, condition of cardiovascular and blood-clotting systems of patients with meningococcal infection, their treatment and dispensary care. The results of these studies were published in journal articles, methodological instructions for clinical physicians and the monograph, "Meningococcal Infection," which was written in collaboration with Docent I. A. Sokolova.

In 1979, Sh. Kh. Khodzhayev headed the Uzbek Affiliate of the Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences. Sh. Kh. Khodzhayev, a mature scientist and experienced administrator, performed an enormous job within a short period of time to establish the scientific base and screen personnel for the newly organized research center.

Research was deployed at the institute on the most pressing aspect of infectious diseases--viral hepatitis. He analyzed from a modern point of view the epidemiology of viral hepatitis in the republic, correlation between hepatitis A and B, incidence of Hb antigen carriers in Tashkent and oblasts of the republic, and outlined the routes for lowering the incidence of this disease.

In May 1983, an international symposium dealing with viral hepatitis, with participation of CEMA-member nations, was held at the institute.

Sh. Kh. Khodzhayev has authored 150 scientific works, including 5 monographs. A total of 17 candidatorial and 2 doctoral dissertations were defended under his guidance.

Prof Sh. Kh. Khodzhayev has often represented Soviet medical science abroad. He has delivered lectures at universities in Cairo, Kenya, Lebanon, Sofia, etc.

Sh. Kh. Khodzhayev is greatly involved in public work. For many years he has been a member of the Presidium of the Uzbek Republic "Znaniye" Society, chairman of its scientific methodological council for medicine, member of the plenum of the All-Union Society of Epidemiologists; he is involved in the work of the editorial council of MEDITSINSKIY ZHURNAL UZBEKISTANA [Medical Journal of Uzbekistan]. He has been elected deputy of the city and rayon councils of people's deputies at seven convocations.

In recognition of the major scientific, medical and pedagogic achievements, the titles of Honored Physician of UzSSR, Honored Scientist of UzSSR and Honored Scientist of Kara-Kalpak ASSR have been bestowed upon Sh. Kh. Khodzhayev.

Sh. Kh. Khodzhayev has been twice recipient of the Order of Red Banner of Labor, as well as Honorary Certificates of the Presidium of the Supreme Soviet of UzSSR and Presidium of the Supreme Soviet of Moldavian SSR.

Shabat Khodzhayevich Khodzhayev is celebrating his 60th birthday at the height of his creative energies. He is full of vigor and the desire to fulfill great plans of scientific and clinical endeavors.

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10,657  
CSO: 1840/1003

UDC: 615.838(517.3)

DEVELOPMENT OF SANATORIUM AND HEALTH RESORT SERVICES IN MONGOLIAN PEOPLE'S REPUBLIC

Moscow VOPROSY KURORTOLOGII, FIZIOTERAPII I LECHEBNOY FIZICHESKOY KUL'TURY in Russian No 4, Jul-Aug 84 (signed to press 3 Jul 84) pp 40-43

[Article by L. Odonchimed and L. I. Baklykov]

[Text] Questions of health care are in the center of attention in the social program of the Mongolian People's Revolutionary Party, government and trade unions. The general direction of work of the socialist public health care in MNR [Mongolian People's Republic] is disease prevention. The preventive and health-improving role of resorts is constantly increasing for the successful solution of this honorable problem.

The enormous achievements in economics and culture, consistent improvement of the people's material welfare have made it possible to establish in this country an entire sector of mass health improvement of the public. A therapeutic-preventive network--sanatoriums, rest homes, Pioneer camps, resort hotels, tourist bases and sanatorium-preventoriums--has been established and is operating well in many of the resort and recreational regions. More than 150,000 people are treated and vacation there each year.

Mongolia is rich in natural resources with therapeutic properties. More than 400 "arshans" (mineral springs) have been found in that country, mainly of cold carbonate and nitrous hydrothermal springs with water temperature of 20 to 100°C. In the south of the country, strongly mineralized sodium chloride springs have been discovered. We know of 42 deposits of therapeutic mud, most of which are hydrogen sulfide silt.

Mongolia is a mountainous country with continental climate. There are 280 sunny days per year. The dry mountain air makes it relatively easy to tolerate both hot and very cold days.

At the present time, it is difficult to state how far back the nomads that lived in Central Asia began to use the numerous arshans for treatment of diseases. The latest archeological and ethnographic data indicate that already 2000 years ago Protomongolian tribes knew about the healing properties of thermal springs in Khuzhirt, Khuremt, Tsagan-Suma and Zarta. This is confirmed by the discovered vestiges of arshan capping, stone troughs and oval

tubs chiseled in rock, ancient stone hearths, traces of roads made of wide granite tiles leading to the springs.

In ancient Mongolian and Tibetan sutaras (books), there are descriptions of arshans and information about use of mineral waters for therapeutic purposes. Thus, in a Chinese chronicle of the Tian dynasty period it is stated that the hot springs of Otgon-Tenger were used as a therapeutic agent as far back as the 8th century. At the present time, a high-altitude balneological resort is operating there.

Ritual vessels that were used for therapeutic mineral water are stored in the famous Erdene-Dzu monastery, which was built in the Middle Ages, near the ancient Mongolian Capital of Khar-Khorinom, in a Buddhist temple.

Contemporary students of folk medicine, B. Rinchen and Ts. Khaydav, report that the most ancient methods of folk healing among cattle farmers and hunters, in addition to use of mineral water, were cauterization with red-hot sharpened rocks, anesthetization by means of applying pressure with the fingers to active biological points. In the distant past, the Mongols learned to prepare the refreshing beverage, kumys, which has therapeutic properties, they learned numerous ways of stocking for the winter high-calorie dairy products and meat that kept well for long periods of time.

In the 13th century, when the rulers of Mongolia began to invite physicians from Tibet to be their court doctors, the Tibetan treatment system started to penetrate into that country. In 1460, The Tibetan otoch (physician), Zhamgonchirinchin, described 104 mineral springs. In the 17th century, the otoch D. Sanzhaazhamts devoted a separate chapter in his book, "Biderombo," to mineral waters. The work of an entire constellation of talented Mongolian scientists, including the otoches Danzanzhantsan, Ishbalzhir, Choymbol, Dandar and Zhambaldorzh, made a large contribution to the study and practical use of arshans, as well as folk medicine products.

The mineral springs were very popular with the people, not only from surrounding areas, but remote camps, forming entire settlements of tents and yurts. The numerous signs of gratitude--khodaks (cult objects) left by patients who were cured were testimony to the therapeutic value of the springs.

Eastern medicine, which was formed on the basis of the enormous experience gained by the peoples of India, China, Tibet and Mongolia, who practiced Buddhism, had a rather logical, distinctive, theoretical and practical system of treatment, often with the correct conclusions. In it, preference was given to physical methods of treatment: bathing in arshans and salt lakes, drinking mineral water, treatment with steam from hot springs, mud and hot sand treatment, acupuncture and cauterization, original massage with application of pressure with the fingers and compresses.

However, along with talented otoches, other people also practiced healing. An enormous number of people ignorant in matters of treatment appeared in the area of medicine: lamas, wise men and shamans, who transformed, by charlatan methods, rendering therapeutic care into a means of enrichment at the expense of the illiterate, depressed people. There were always lamas

near popular arshans, who unabashedly collected payments from sick "arat" beggars for prayers and medicine. Lamaism isolated and retarded development of Eastern medicine, causing it to adhere to Buddhist philosophy dating back a 1000 years.

Hydrotherapy methods were developed without consideration of the physiochemical composition of mineral waters, mechanism of their action on the sick, and they were excessive. For example, over a 14-day period of therapy, a patient took up to 50 tub baths and drank 3 to 6 liters of mineral water per day. The indications for balneotherapy were questionable, and sometimes simply harmful (for example, treatment of tuberculosis at thermal hydrogen sulfide springs).

On the eve of the revolution, in March 1921, in the party program that was approved at the First Congress of the Mongolian People's Revolutionary Party in Kyakhta, it was stated: "The party is striving to develop important measures to benefit the state and the people, such as therapeutic-preventive care and relief for the people." From the very first days after the victory of the people's revolution, the party devoted exceptional attention to development of public health based on principles of scientific medicine.

Enormous advances in the matter of public health care and raising sanitary standards became possible thanks to the selfless fraternal assistance of the Soviet people. Soviet scientists made a major contribution to the study and use of balneological resources of this country, as part of the first medical and hydrogeological research expeditions starting in 1926: V. A. Smirnov, Kh. M. Freydin, S. Yu. Belen'kiy, N. G. Chuntumov, A. T. Ivanov, K. K. Bondarenko, A. Ye. Chernyak, G. V. Makarenkov, N. I. Tolstikhin and others.

In 1930, an expedition of the MNR Ministry of Health was sent to the Yero thermal springs; it was headed by the Soviet scientist, Kh. M. Freydin and was to set up sanatorium and resort therapy for the sick. A bath department, hotel and dining room were opened. For the first time, the treatments were under medical supervision. In 1931, the first rest home with a kumys sanatorium was opened near Ulan-Bator. In 1932, carbonate mineral water was found in the suburbs of the capital while drilling wells for water to be used for industrial purposes. Soon a bath department with 20 tubs was constructed at this spring, a medical walk-in center was opened, and dispensing mineral water in bottles was organized for the first time. At the present time, the large 450-bed sanatorium, Orgil, is operating there. In 1934, a 40-bed sanatorium and bath facility were built in Khuzhirt. At the present time, at this resort there are 650 sanatorium beds, a Pioneer camp for 200 children and an international tourist base.

In 1940, the sanatorium and resort service in MNR was transferred under the jurisdiction of the Central Council of Mongolian Trade Unions. In 1949, the climate and mud sanatorium, Gurvannur, was opened and in 1952, the Otgon-Tenger sanatorium. In 1955, the balneological health resort, Zhanchivlin, was opened at a carbonate spring and Shargalzhut sanatorium, at the unique nitrous hydrothermal springs. The Sel'be sanatorium, with a kumys treatment department for tuberculosis patients was opened not far from Ulan-Bator.

Scientific bases of resort therapy began to be developed in the country, studies were started on the mechanism of action of mineral waters on the,

sick. Combined methods of treatment began to be developed, involving use of natural healing agents, therapeutic physical culture, massage, preformed physical factors, balanced and dietetic nutrition. Publication of scientific works of medical figures, physicians specializing in resort therapy and balneologists--O. Nyamdorzh, D. Densma, B. Zhanchiv, N. Chultem-Bayar, N. Tsedenzhav, B. Nambar, T. Sukhe-Bator and others--was of great practical importance.

As a result of many years of hydrogeological investigations of mineral springs, the book, "Mongolian Arshans," by Soviet scientists, N. A. Marinov, V. N. Popov and N. I. Tolstikhin was published in 1949. In 1957-1960, a Mongolian expedition consisting of O. Nyamdorzh, Sh. Tseren and O. Namnandorzh inspected more than 230 arshans, with laboratory testing of mineral waters. The many-year work of the Soviet-Mongolian combined Khubsugul expedition from Irkutsk University imeni A. A. Zhdanov and the Mongolian State University, which was organized on the basis of an agreement with the Central Council of Mongolian Trade Unions, was very important to the study of resort resources. The results of the studies were published in 1980 in the monograph, "Geochemistry of Subterranean Mineral Waters." A map of the country's mineral waters was plotted in 1983.

In accordance with the plan of the party and government of MNR, the Scientific Research Center for Problems of Resort Therapy and Balneotherapy was founded in 1982 under the Main Administration for Rest Home and Health Resort Affairs. Its tasks include solving pressing problems of resort therapy, medical assessment of mineral waters, peloid muds, climate factors, investigation of mechanism of action of resort factors, development of differentiated, combined methods of treating the most widespread diseases.

Scientific research in the area of balneology, improvement of the hydromineral base, expansion of the therapeutic-preventive network of trade unions, outfitting health facilities with modern physiotherapy and diagnostic equipment, introduction to practice of advances in Soviet and foreign medical science, broad use of natural therapeutic resources make it possible to achieve a high efficacy in rehabilitation of patients through sanatorium and resort therapy.

Sanatorium-resort and tourist travel passes are given to workers at a reduced cost, and sometimes free of charge. Moreover, trade unions reimburse blue- and white-collar workers for 50% of the cost of fares to resorts.

At the present time, the organizers of resort services are concentrating mainly on preparation of legislative documents regulating use of natural therapeutic localities in the light of the requirements of modern resort science, on development of large resort and recreation regions, concentrating in them medical personnel and medical equipment, growth of professional skill of workers at health facilities, organization of medical diagnostic centers, raising the standards and quality of care for the sick and vacationing.

The Central Committee of the Mongolian People's Revolutionary Party and MNR Council of Ministers have repeatedly discussed matters related to further improvement and development of sanatorium and resort services for this country's people. In the approved documents, some important tasks have been formulated to achieve indicators characterizing good health for the growing generation, restoration of work capacity and health of working people. There is no doubt that these tasks will be fulfilled with success.

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UDC: 614.895.5:]613.646:613.166.9

RESULTS OF STUDIES OF MODEL SPECIMEN OF COMBINED ONE-SIZE HEAT PROTECTIVE CLOTHING

Moscow GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA in Russian No 7, Jul 84 pp 32-37

BUSYGINA, L. K., KARPINOS, D. M., MALAKHOV, A. I., MIROSHNIKOVA, T. K. and SALAMAKHIN, A. D.

[Abstract] A new type of heat protecting clothing has been developed consisting of a bandage-like strip 100 mm wide and 10 m long containing heat insulation and electrically insulated heating element wires. The strip is wrapped around the body as desired, covering the lower body and legs, upper body and arms or entire trunk. Electric current is then supplied to provide warmth. A test of the system in a -40°C cold chamber has shown the possibility in principle of creating one-size-fits-all clothing by this method to provide a comfortable level of warmth in this temperature range. Technical improvements are needed to increase the efficiency of the system. Figures 4.  
[1626-6508]

UDC: 593

PLANKTOTROPHIC LARVAE OF BIVALVE MOLLUSCS: MORPHOLOGY, PHYSIOLOGY, BEHAVIOR

Vladivostok BIOLOGIYA MORYA in Russian No 3, May-Jun 84  
(manuscript received 18 Apr 83) pp 3-16

KAS'YANOV, V. L., Laboratory of Embryology, Institute of Marine Biology, Far Eastern Scientific Center, USSR Academy of Sciences, Vladivostok 690022

[Abstract] The digestive, locomotor, nervous and other systems of veligers and pediveligers are reviewed. A characteristic feature of bivalve mollusc larvae is the combination of purely larval pelagic organizational features with deep maturation of the larvae, manifested as early formation of many definitive organs. It is characteristic that these organs are restructured,

becoming functioning organs of the floating larvae. The metamorphosis of larvae is described. It is evolutive in nature due to the penetration of the definitive structures into the pelagic organization of the larvae. Diagrams are presented of the veliger of Ostrea Edulis, the pediveliger of Mytilus Edulis and Ostrea Edulis. Figures 4; references 59: 5 Russian, 54 Western.  
[1516-6508]

UDC: 614.894.2:I613.632:615.285.7

NEW LIGHTWEIGHT SORPTION-FILTERING RESPIRATORS DESIGNED FOR PROTECTION FROM HEXACHLOROBUTADIENE

Moscow GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA in Russian No 6, Jun 84 (manuscript received 26 Dec 83) pp 39-41

RUBTSOV, V. I., KVITKO, I. I., LOBANOV, B. G., FADEYEV, P. Ye., TRET'YAKOV, F. D., ZAVERTAYLO, N. I. and KASHCHEYEV, A. B.

[Abstract] The only known effective method of control of phyloxera is fumigation of the soil of vineyards with hexachlorobutadiene. However, this insecticide is highly toxic. This work presents the results of studies of the protective and usage properties of a new lightweight "lepstok-A" sorption-filtering respirator. A further development of the SHB-1 "lepstok" respirator, it includes an additional filter made of FP material filled with activated carbon. The respirator allows workers to perform the major operations required, presents low breathing resistance and does not significantly affect the working capacity of its wearer. It can effectively protect the worker for up to one working shift with relative humidity up to 50% and concentration of hexachlorobutadiene up to 40 times the MPC, or 20 times MPC with relative humidity 60% and 10 times MPC with relative humidity over 60%. The respirator is recommended for wide use. Figure 1; references 7 (Russian) and 3 footnotes (Russian sources).

[1625-6508]

UDC: 598.2/9-15

VARIATION IN FLIGHT SPEED AND WING FLAP FREQUENCY OF COMMON RIVER TERN  
(STERNA HIRUNDO L.) AS FUNCTION OF HEAD AND TAIL WIND SPEED

Kiev DOKLADY AKADEMII NAUK UKRAINSKOY SSR, SERIYA B: GEOLOGICHESKIYE,  
KHMICHESKIYE I BIOLOGICHESKIYE NAUKI in Russian No 7, Jul 84  
(manuscript received 8 Dec 83) pp 77-79

TSEVLYKH, A. N., Kiev State University imeni T. G. Shevchenko

[Abstract] Flight speed measurements were performed by means of triangulation installation, wing flap frequencies were computed by recording the number of flaps during the time that birds passed through the observation area in a Black Sea preserve in 1981-1983. Wind speed was measured with a hand held anemometer. Only measurements in which the angle between the vector of flight of the bird and direction of the wind was not over 20° were considered. Flying heights varied between 5 and 10 m. A reliable correlation was found among all of the parameters measured. The air speed increases with increasing wind speed, significantly more rapidly with a head wind than with a tail wind. This is one of the apparent reasons for the fantastic flight speeds of certain birds, since most measurements are performed in windy weather. With head winds, terns are capable of compensating for about 26% of the wind drift. Wind flap frequency also varies with strength and direction of the wind, showing a tendency to decrease with increasing air speed. Consequently, birds significantly change their flight techniques with wind speed.

References 11: 3 Russian, 8 Western.

[1622-6508]

UDC: 6613.155.3-07

PORTABLE ASPIRATOR WITH AUTONOMOUS POWER SOURCE

Moscow GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA in Russian No 5,  
May 84 (manuscript received 5 Jul 83) pp 56-57

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[Abstract] The PRU-4, EA-30, POV-1 and Model 822 portable aspirators (Krasnogvardeyets plant) are presently used to take air samples under production conditions. All of these devices must be plugged into a 220V line to operate. The authors' group has manufactured a new portable aspirator powered by a battery (ZMT-12). The aspirator can draw two air samples simultaneously at rates of 1 to 20 liters per minute. It can operate for eight hours without battery recharging or lubrication of the air valve. Photographs and schematic drawings are presented.

[1607-6508]

EFFECTIVENESS OF CHLORINE PRODUCED ELECTROLYTICALLY FROM SEA WATER IN  
DISINFECTION

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[Abstract] Experimental studies were conducted on the utility and effectiveness of using chlorine derived from sea water by electrolysis for disinfection aboard fishing vessels. Chlorine obtained in such a manner was found completely satisfactory for bactericidal purposes and to be equivalent to calcium hypochlorite. Cold sea water, used for technical purposes, was readily disinfected with chlorine concentrations of 5 mg/ml and exposure times of 10 min, if the microbial flora did not exceed a concentration of 3 log/ml. In addition, chlorinated sea water containing 250-450 mg/liter chlorine at 50°C was entirely satisfactory for disinfection of technical equipment used in food processing. Electrolysis of sea water appears to be, therefore, a convenient and relatively inexpensive method for securing chlorine for disinfection purposes aboard fishing vessels. References 2 (Russian).

[1505-12172]

BRIEFS

NON-CHEMICAL WATER DISINFECTANT--The disinfection of water without chemicals is accomplished in a compact "Kaskad" device developed at the Kommunal'nik plant in Moscow. Natural water streams are processed after biological purification and before the water enters open reservoirs. The device, with an output rate of 2.5 cubic meters/hour, is suitable for rural settlements, suburban schools, sanatoria, and camping grounds. Chemical reagents are not required for its disinfection of water streams. Putrefactive and other bacteria are destroyed by active oxidants that are formed from salts in the water by the action of an electrical current (300 A) in the flow-through chamber of the "Kaskad." This method has been recognized favorable to the environment. [Text] [Moscow TEKHNIKA I NAUKA in Russia No 8, Aug 84 p 11] [COPYRIGHT: "Tekhnika i nauka," 1984] 6289

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